



FUEL ANALYSIS



# MINISCAN IRXpert

## Intelligent Portable Multi-Fuel Analyzer

The MINISCAN IRXpert is the first completely portable multi-fuel analyzer for Gasoline, Diesel and Biofuel Blends, which combines the advantages of mid-FTIR and near-FTIR spectroscopy for utmost measurement accuracy. More than 70 fuel parameters are accurately determined by scanning the complete spectrum with superior resolution. Based on Grabner Instruments profound knowledge in fuel analysis, the MINISCAN IRXpert is designed as an intelligent, self-learning analyzer.

### • Comprehensive Fuel Analysis

More than 12,000 data points from the infrared spectrum are used to determine the concentrations of molecules present in the sample. The MINISCAN IRXpert spectrum yields a "fingerprint" for 70+ important fuel components, compounds and properties. An integrated density meter allows for direct determination of fuel density.

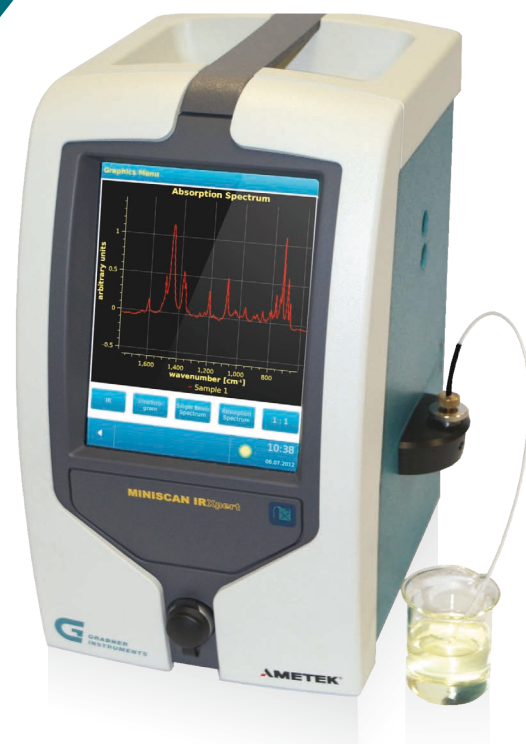
### • Mid-IR and NIR for Highest Accuracy

Highest accuracy is achieved by analyzing spectrum information from the mid-IR and near-IR range. Compound analysis is performed according to the international standards ASTM D5845 for oxygenates, ASTM D6277 and EN 238 for Benzene and EN 14078 for Biodiesel blends. Advanced standard-

ized chemometrical methods according to ASTM E1655 are used for "on the spot" fuel property determination: Octane number, AKI and cetane number correlate to ASTM D2699, 2700, 613, ISO 5163, 5164, 5165, distillation to ASTM D86, ISO 3405 and vapor pressure to ASTM D6378, D5191, D323, EN 13016.

### • Maximising Ease of Use

The IRXpert comes fully configured for testing fuels right from the street. A high end full color touch-screen facilitates menu navigation and allows in depth spectrum analysis. USB and Ethernet interfaces allow quick data-transfer, printing, LIMS integration and remote control and service. For field use the MINISCAN IRXpert can be run with a 12V car adapter.



Data based on real samples collected and analyzed by SGS®!

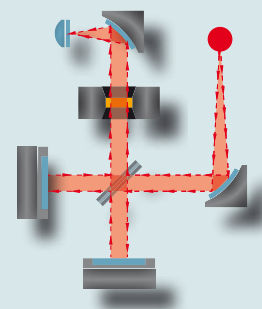
### • Highest Data Quality

MINISCAN IRXpert operates calibration data, that has to adhere to highest quality standards. As a unique feature the instrument is equipped with a database of samples that have been collected and analysed by SGS®.

### Key Features

- Portable Mid-IR and NIR Analyzer for Gasoline, Diesel and Biofuel Blends
- Full Spectrum: 12,900 data points
- Superior Resolution: 2cm<sup>-1</sup>
- Temperature & Laser Controlled System
- Unlimited number of parameters
- Self-learning chemometrics
- WORKS™- Worldwide Online Remote Control and Services

GASOLINE				DIESEL	
<b>PROPERTIES</b>		<b>Range <sup>1)</sup></b>		<b>Range <sup>1)</sup></b>	
RON		80 - 110		Cetane Number	
MON		75 - 105		Cetane Index	
AKI		77 - 107		Kinematic Viscosity @40°C	
RVP & DVPE		40 - 105 kPa		Dynamic Viscosity @40°C	
Distillation / Evaporation		IBP, T10, T50, T90, FBP, E70/100/150 (°C), E200/300 (°F)		CFPP	
Density		0 - 3 g/cm <sup>3</sup> (r <sub>s.d.</sub> = 0.0005 g/cm <sup>3</sup> )		Distillation / Recovery	
Driveability Index (DI), VOC emissions, Vapor Lock Index (VLI)				IBP, T10/50/65/85/90/95, FBP R250, R350	
UNLIMITED user-defined parameters				Density	
<b>COMPONENTS</b>				0 - 3 g/cm <sup>3</sup> (r <sub>s.d.</sub> = 0.0005 g/cm <sup>3</sup> )	
<b>Oxygenates</b>		<b>Range <sup>2)</sup></b>		<b>COMPONENTS</b>	
<b>Aromatics</b>		<b>Range <sup>2)</sup></b>		<b>Range <sup>2)</sup></b>	
MTBE	0 - 20 m%	Benzene	0 - 10 m%	Total Aromatics	0 - 80 m%
TAME	0 - 20 m%	Toluene	0 - 20 m%	Poly Nuclear Aromatics	0 - 50 m%
ETBE	0 - 20 m%	o, p, m-Xylene	0 - 20 m%	Cetane Improver: EHN, IPN	0 - 10000 ppm
DIPE	0 - 20 m%	Ethylbenzene	0 - 20 m%	FAME / FAEE	0 - 40 v%
Methanol	0 - 15 m%	Propylbenzene	0 - 20 m%		
Ethanol	0 - 40 m%	Mesitylene	0 - 20 m%		
Isopropanol	0 - 20 m%	Durene	0 - 20 m%		
2-Butanol	0 - 25 m%	Naphtalene	0 - 10 m%		
tert-Butanol	0 - 25 m%	Pseudocumene	0 - 20 m%		
Other Oxygen.	0 - 20 m%	2,3,4-Ethyl toluene	0 - 20 m%		
<b>Octane Boosters</b>	<b>Range <sup>2)</sup></b>	Other Aromat.	0 - 20 m%		
MMT [mg/l]	0 - 10000				
DCPD	0 - 15 m%	<b>Total Parameters</b>	<b>Range <sup>2)</sup></b>		
N-Me-Aniline	0 - 5 m%	Total Oxygen	0 - 12 m%		
Nitromethane	0 - 9 m%	Total Aromatics	0 - 80 m%		
Sec-Butylacetate	0 - 10 m%	Total Saturates	0-100m%		
Dimethylcarbonate	0 - 10 m%	Total Olefins	0 - 80 m%		
Dimethoxymethane	0 - 10 m%	Di-Olefins	0 - 20 m%		



Principle of Operation  
FTIR Spectrometer

## TECHNICAL DATA

Standards	ASTM D5845, D6277, D7777, D7806, EN 238, EN 14078, ISO 15212
Correlation to	ASTM D86, D323, D445, D1319, D5191, D 6371, D6378, D613, D2699, D2700, ISO 3104, ISO 3405, ISO 5163, ISO 5164, ISO 5165, EN 116, EN 13016
Spectrometer	Temperature Controlled, Dry Gas Protected, Dual Cell, Mid-FTIR and Near-FTIR
Density Measurement	Temperature Controlled Oscillating U-Tube Cell
Warm Up / Scanning Time	1 min. / 80s (Multiple Scans)
Units of Measurement	v%, m%
Display	8.4" full color touch screen
Interfaces	4x USB, Ethernet
Power Supply	90-264 V AC, 47-63 Hz, 200 W (field application with DC adaptor for 12 V vehicle battery)
Dimensions (WxHxD), Weight	253 x 368 x 277 mm (10 x 14.5 x 10.9 inch), 12 kg (26 lb)

<sup>1)</sup> Range and Quality of Property Prediction depends on database used

<sup>2)</sup> The lowest concentration value is the Limit of Detection (LOD)

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